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Application Serial No. 10/632,898  
Responsive to Office Action dated 5 May 2004

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**FIELD OF THE INVENTION**

The invention relates to a plant growing device, and in particular, to a plant growing device for meeting various requirements of different consumers and promoting agriculture.

**DESCRIPTION OF THE PRIOR ART**

The conventional growing manner of plants or vegetable, such as using earth, seeding, fertilizing, disinfecting, harvesting or the like, also with routine watering and weeding is used to produce various plants and vegetables for appreciating and eating. However, due to an increasing environmental consciousness and care of health, people try their best to avoid using insecticide. Thus, organic vegetables are becoming the most popular and rapidly developing class of vegetables in the 21st century. Refined agriculture is popular because everyone can eat fresh vegetables grown by himself. Nevertheless, although refined agriculture can avoid insecticide pollution, it requires using earth, fertilizing and so forth, and in particular, it is difficult for a beginner to effectively control the appropriate timing for fertilization and the quantity of fertilizer to be used, which directly relates to plant growth.

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### **SUMMARY OF THE INVENTION**

An object of the invention is to provide a plant growing device relating to various requirements of consumers and farmers to develop different products. Consumers and farmers can selectively use the plant growing device to increase the quantity of agricultural output.

Another object of the invention is to provide a plant growing device especially for promotion of industry and cost reduction, the plant growing device provides a time-saving and convenient manner for growing plants.

Another object of the invention is to provide a plant growing device that uses a seed fixing film to prevent weeds from growing. The seed fixing film is composed of a weaveless cloth, paper or various artificial materials, and it is determined whether or not to add several holes in the seed fixing film according to the material thereof.

Another object of the invention is to provide a plant growing device implemented to pot plants and grow plants outdoors in wide areas, such that the size of the growing area is changeable.

The plant growing device having advantages described above comprises: a seed fixing film having an upper thin film or gel thereon one or more plant seeds equidistantly disposed on the seed fixing film; and a thin film or gel covering on the seed fixing film in order to fix the seeds thereon. The device described above can be banded as a roll or be folded as in computer form paper, for saving space.

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The drawings disclose an illustrative embodiment of the present invention which serves to exemplify the various advantages and objects hereof, and are as follows:

Figure 1 is a schematic view of the first growing area of plant growing device according to the invention;

Figure 2 is a schematic view of the second growing area of plant growing device according to the invention;

Figure 3 is a schematic view of the third growing area of plant growing device according to the invention;

Figure 4 is a schematic view of the fourth growing area of plant growing device according to the invention;

Figure 5 is a schematic view of the fifth growing area of plant growing device according to the invention;

Figure 6 is a schematic view of the sixth growing area of plant growing device according to the invention;

Figure 7 is a schematic view of the seventh growing area of plant growing device according to the invention;

Figure 8 is a schematic view of the eighth growing area of plant growing device according to the invention;

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Figure 9 is a schematic view of the ninth growing area of plant growing device according to the invention;

Figure 10 is a schematic view of the tenth growing area of plant growing device according to the invention;

Figure 11 is a schematic view of net setting of plant growing device according to the invention;

Figure 12A is a schematic view of the plant growing device according to the invention to be bound for storing;

Figure 12B is a schematic view of the plant growing device according to the invention to be folded as in computer form paper;

Figure 13A is a schematic view of the plant growing device according to the invention implemented in large farm;

Figure 13B is a schematic view of the plant growing device according to the invention implemented in a pot;

Figure 14 is a schematic view of an exemplary embodiment of the plant growing device according to the invention;

#### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

Referring to Fig. 1, a schematic view shows a plant growing device according to the invention.

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The device includes a seed fixing film 1, said seed fixing film 1 is a dissolvable type or an indissolvable type. If the seed fixing film 1 is an indissolvable type, it also has the function of blocking the growth of grass. During manufacture of the seed fixing film 1, seed preservative, nutrients, fertilizer, insecticide, germs or various special additives can be added to the raw materials of the seed film. A growing space for the seed 2 is reserved when the material of the seed fixing film 1 is formed and is not yet dry. One or more seeds are equidistantly disposed on the seed fixing film 1 that is not dry, the seeds 2 are fixed after the seed fixing film 1 dry.

Referring to Fig. 2, a schematic view shows another fixing arrangement of the seeds. The seed fixing film 1 is dissolvable with a thick gel layer 3 spread thereon and more seeds 2 are equidistantly disposed on the seed fixing film 1 when the gel layer 3 is not dry, making the seeds 2 sink into and close to the seed fixing film 1. The seeds 2 are fixed after said gel layer 3 has dried. The thick gel 3 can be spread around the seeds 2 for extending the dissolving time of the gel film 3 to achieve a grass growth blocking function.

Referring to Fig. 3, the user can spread a thin gel layer 3 on the seed fixing film 1. One or more seeds 2 are then disposed at a fixed position on the seed fixing film 1, and then covered with a thin gel layer 4, locating the seeds 2 between the seed fixing film 1 and the thin gel layer 4.

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Referring to Fig. 4, reserved spaces 11 are reserved on the seed fixing film 1 for the seed 2. A gel layer 3 is spread on the other positions, and then the seeds 2 are placed in the spaces 11 and a thin film layer 4 is covered thereon. The steps described above places the seeds 2 between the seed fixing film 1 and the thin film 4.

Referring to Fig. 5, the surface of the seed fixing film 1 is spread with a gel 3 in a grid-like pattern. The seeds 2 are disposed in the spaces of the grid-like pattern of the gel 3, and a thin film layer 4 is covered thereon. The steps described above places the seeds 2 to be growable between the seed fixing film 1 and the thin film 4.

Referring to Fig. 6, the surface of the seed fixing film 1 is spread with a gel 3 in an annular pattern around each seed space. The seeds 2 are disposed in the spaces circumscribed by the annular pattern of gel 3, and a thin film layer 4 is covered thereon. The steps described above place the seeds 2 to be growable between the seed fixing film 1 and the thin film 4.

Referring to Fig. 7, the seed fixing film 1 is cut to form several film segments 12 in the shape of a semicircle, or a square, or other geometric figures. The film segments 12 are spread with a gel layer 3 and the seeds 2 are placed on the film segments 12, then the film segments 12 are stuck to the remaining surface of the seed fixing film 1. Then, the seeds 2 are fixed to the film 12.

The gel layer 3 that is spread on the seed fixing film 1 has seed preservative, nutrients, fertilizer, insecticide, germs or various special additives that may be added.

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Additionally, said gel layer 3 can combine the functions of promoting plant growth and inhibit grass growth.

Referring to Fig. 8, if the seed fixing film 1 is not dissolvable, the user can cut several score lines 13 in a cross, a star or the other pattern and position the seeds 2 on the score lines 13. When the seeds 2 sprout, their roots will extend downwardly through the score lines 13.

Referring to Fig. 9, if the seed fixing film 1 functions to inhibit grass growth, the user can form one or more holes 14 in the seed fixing film 1. The size of a hole 14 is larger than the size of a seed 2. One end of the hole 14 is covered with a thin film 4 for closing the hole 14, and the other end of the hole 14 is covered with a thin film 4 after the seed 2 is put into said hole 14. When the seeds 2 sprout, their roots extend downwardly through the thin film 4.

Referring to Fig. 10, if the seed fixing film 1 functions to inhibit grass growth, one or more small holes 15 are formed in the seed fixing film 1. The hole 15 has a size that is smaller than the size of a seed 2. The seed 2 is disposed in the small hole 15. The seeds 2 are fixed by a gel 3 or by covering them with a thin film. When the seeds 2 sprout, their roots extend downwardly through said small holes 15.

Further, the seed fixing film 1 and said gel layer 3 have seed preservative, nutrients, fertilizer, insecticide, germs or various special additives added thereto, or the above-described additives are directly disposed on or around the seeds 2, or blended with

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the seeds 2 for providing required nutrition for growth to of the seeds 2. The seed fixing film 1 is composed of a weaveless cloth, paper or various artificial materials. It is determined whether or not to add holes in the seed fixing film 1 based on the material of the seed fixing film and the functions of helping plants grow and preventing grass from growing.

In addition, the seed fixing film 1 is also configured with a net film layer 7 to protect growing plants from insects, because imagos do much damage to the plants, as do snails, spiral shells, and birds. It is a large task to keep pests from growing plants.

Referring to Fig. 11, the net film layer 7 is light and thin, and the growing plants can easily prop up said net film layer 7 so as not to confine the growth of the plants. Elastic parts 71 are located on the two ends of said net film layer 7 for providing the space needed for the growing plants. The growing plants can easily prop up the net film layer 7 to not confine the growth of the plants. Furthermore, the net film layer 7 is pervious to water and light, and is rain-resistant, wind-resistant or the like. The net film layer 7 also prevents birds and insects from invading and destroying the plants.

Referring to Fig. 12A, and 12B, in any of the arrangements described above, or whether a net film layer 7 is added the seed fixing film 1 is pressed to form a band to be bound in a roll 51 for storage or folded as in computer form paper 52 for saving the space. The seed fixing film 1 can be used practically for a growing area, settling essential land problems associated with growing plants.

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The application of the invention depends on the requirements of the grower, appropriate land, the size of the growing area and so forth. Referring to Fig. 13A, a schematic view shows application of the invention which is bound as a roll to a wide farmland. The invention is convenient to use and the speed of seeding is faster than the conventional method. Referring to Fig. 13B, the invention can be cut into suitable shapes and sizes according to the size of the growing pot.

The invention provides a simple function of beautifying the environment. Seed fixing film 1 is easily cut, and various flower seeds can be grown on the seed fixing film 1. The seeds can be separated by strains and colors to form a beautiful drawing, and because that seed fixing film 1 grows no grass, the result seems more colorful. Referring to Fig. 14, the user cuts different plant seeds into shapes or characters, depending on what he needs, pattern 61 uses red flower seeds, background 62 uses green plant seeds, and characters 63 use yellow flower seeds. All the seeds are arranged in order to easily cut and conveniently made into a gardening work. It is expected to see the seeds grow into flowers or plants and then become a beautiful work.

The plant growing device provided by the invention has the following advantages:

1. The invention provides a plant growing device relating to various requirements of consumers and farmers to develop different products. Consumers and farmers can selectively use the plant growing device to increase the quantity of agricultural output and for industrial promotion and cost reduction.

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2. The invention covers the seeds with a thin film that has seed preservative, nutrients, fertilizer, insecticide, germs or various special additives added thereto, directly providing required nutrition for growth to the seed, eliminating the complicated step of fertilizing and simplifying the growing process.

3. The invention can simplify the process of growing plants. The user just needs to respectively apply the invention to a growing medium or the surface of soil. The invention is not confined to any particular size of space and can also make a big crop.

4. The seed fixing film of the invention is a dissolvable type or an indissolvable type.

Many changes and modifications in the above-described embodiment of the invention can, of course, be carried out without departing from the scope thereof. Accordingly, the invention is disclosed and is intended to be limited only by the scope of the appended claims.

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**ABSTRACT OF THE DISCLOSURE**

A plant growing device includes a seed fixing film with an upper thin film thereon. One or more plant seeds are disposed on the seed fixing film and covered with the thin film or gel. The device can be banded as a reel or folded as in computer form paper for saving space.